Institution: Lancaster University

Unit of Assessment: D34 (Art and Design: History, Practice and Theory, Main Panel D, Sub-panel 34)

Title of case study: Design and the Urban Environment

1. Summary of the impact (indicative maximum 100 words)

Since 2006 Professor Cooper has led interdisciplinary research to inform the design of the urban environment, especially in relation to creating sustainable places that support citizen wellbeing. Outcomes include a new model of design decision-making, a toolkit for urban design decisions, and collation of evidence on the impact of environment on mental health and wellbeing. Her work has been supported by EPSRC, over ninety companies, and six city councils. Impact has included tools to enable planners and developers to address issues such as density and wellbeing; informing government policy on mental health and the environment; raising the profile of design-led approaches to complex policy problems.

2. Underpinning research (indicative maximum 500 words)

Cooper demonstrates that design-led interdisciplinary research helps to address the challenges faced by cities to create places that are sustainable and liveable for future generations. The research has focused on design decision-making processes in cities, as well as collecting evidence to inform how designers and non-designers make design decisions.

The core insights from research activity include:

1) **Tools for urban design decisions***:* During 2004-2008 Cooper led a research collaboration of four universities, and the first grant under an EPSRC Sustainable Urban Environments (SUE) programme, called *Vivacity 2020.* This looked at the urban environment from multiple perspectives. Working with Islington Borough Council, and Salford and Sheffield City Councils, resulted in the creation of the *visualisation of an urban design process model,* and the collection of evidence related to crime prevention, liveability, planning and other policy issues. This informed a second EPSRC SUE grant, *Urban Futures.* Here, Cooper's specific research was aimed at addressing aspects of sustainability that had been identified as missing in the previous research, in this case the wider contextual understanding of what constitutes density and its effect on urban design and future cities. This resulted in: *i) A taxonomy of density, to enable planners, developers and designers to consider all aspects of density beyond population and built form, to natural, static and mobile form (work that has never been undertaken before)* This research contributed to the consortium development of ii) *Future Urban Scenarios,* a unique, web-based, interactive tool, and BRE best practice guide for practitioners. This helps them to plan for resilience and adaptation as a key part of urban design. The integrated *Urban Futures Method* tests the likely future performance of today's planning and development proposals, in a series of possible future scenarios in the year 2050, using density indicators alongside a number of other environmental and social indicators. The tool kit was developed in conjunction with Birmingham City Council and tested with Lancaster City Council and also in Milan.

2) **A model of three dimensions of the physical environment that affect wellbeing:** Cooper further explored and informed urban design decision-making by carrying out a critical review of wellbeing and the environment commissioned from Foresight Government Office as part of the Foresight programme on Mental Health and Mental Capital. This resulted in a definition of the underlying physical, psychological and ambient influences of the built environment on our wellbeing and their impact on mental health.

3) **Design as a facilitator of interdisciplinary research**: Through undertaking interdisciplinary research Cooper has developed insights into how the use of design process and practice can illustrate complex urban design and decision-making, through holistic thinking, evidence generation and visualisation.

3. References to the research (indicative maximum of six references)

- **Cooper R**, Evans G, Boyko C (2009) *Designing Sustainable Cities*, Blackwell Wiley pp. 314.
- Lombardi, D. R., Boyko, C. T. *et al* The Urban Futures Team - **Cooper R**. (2012). *Designing Resilient Cities: A Guide to Good Practice*. Bracknell, UK: BRE IHS Press pp. 125.
- Boyko, C. T., **Cooper R,** (2011) "Clarifying and re-conceptualising density. Planning in Progress" 76 pp 1-61.doi:10.1016/j.progress.2011.07.001
- **Cooper R,** Boyko C & Codinhoto, R (2008) "Mental Capital and Wellbeing and the Physical Environment, Foresight Science Review", www.foresight.gov.uk, pp1-32
- **Cooper R** and Boyko C, (2011) "Design for Health: the relationship between Design and Non-communicable Diseases", Journal of Health Communication 16: pp. 134 - 157.
- ***Urban Futures****,* 2008- 2012 EPSRC Sustainable Urban Environment Consortium (£3m) with Birmingham (PI) and Exeter Universities.

4. Details of the impact (indicative maximum 750 words)

Cooper's collaborative research raises awareness about the relationship between complex urban design decision-making and the creation of sustainable cities where inhabitants can enjoy wellbeing and quality of life. This has had significant impact on government, local authorities, planners, architects and developers:

1) Organisation Impact: *The Urban Futures Toolkit and Methods* was used by Lancaster City Council (LCC) to assess planning for Lancaster Luneside East. The Senior Planner for Regeneration, Lancaster City Council, stated 'the method produced a 'eureka' moment' and provided a framework for the sustainable development of the site. LCC used the Urban Futures Method to instigate and inform public consultation, (January 2011) and in the formulation, with the site developer, of a plan for commercial development. Moreover, it 'invigorated the debate about this site following a two-year period of stagnation, provided the catalyst for new thinking, and the inspiration for those originally involved in site discussions to engage actively again.'

The head of sustainability at CH2MHill, a multinational construction and engineering company, adapted the *Urban Futures Scenario tool and method* for use in CH2M Hill's 'International Cities' project. DSRS Università degli Studi di Milano Bicocca, and representatives from the Milan's nine Zonas used *Urban Futures Method* to inform their policy of decentralisation and address a prevalence of unused, council-owned properties.

The Urban Futures Method has been adopted by BRE (formerly Building Research Establishment) for consultancy, training and in preparation of national and international standards and building codes. In 2012 The Royal Town Planning Institute introduced the urban futures method to its network across England and the Isle of Man. Work on density was reported in the Australian professional journal *Urban Design News* and 130 planners, architects and urban professionals and have taken up the findings through online downloads of The Little Book of Density.

2) Policy Impact: *The model of dimensions of the physical environment that affect wellbeing* was reported by Foresight in October 2008. Its launch was attended by over 300 policymakers and journalists, and the Chief Scientific Advisor. As part of the Foresight Programme it impacted across government (Foresight Project Mental

Capital and Wellbeing One-Year Review, 2009**)**: The Foresight Project and Government Office for Science informed policy on mental health: New Horizons: Towards a shared vision of mental health (July 2009). Key points were incorporated into the Public Mental Health Evidence Review and the Dementia Strategy (in particular to support Objective 16, which called for clear research evidence and needs); and No Health Without Mental Health: a cross-government mental health outcomes strategy for people of all ages (2011).

In 2009 John Denham the Secretary of State for Communities at the Department for Communities and Local Government commented on the importance of this research in informing policy: *'the Department has become much more aware of the ways by which we try and promote wellbeing and positive mental health. For example, we recognise the impact that the local environment can have on people's wellbeing. Through our planning and regeneration policies, we are working to improve the quality of neighbourhoods throughout the country*'.

3) Wider policy impact: Cooper's research improves understanding of the central role of design and the interconnectedness with disciplines in addressing the complex challenges of creating sustainable urban environments. A key way of disseminating these impacts has been her involvement with high-profile committees and external organisations:

- i) in InfrastructureUK's Engineering Interdependency Expert Group, her workshop leadership of 25 leading experts from IT, water, waste, transport and energy industries contributed to recommendations to the National Infrastructure plan 2011 ('EIEG has contributed to the Government's work in this area' p.90);
- ii) a special issue of the *Journal of Health Communication* launched at the UN General Assembly (UNGA) Summit on Prevention and Control of NCDs (September 2011). A member WEF on Global Agenda Council on Well-being and Mental Health reported that there was 'a great deal of interest in that paper as it gave new insights into the role of design';
- iii) her presentation at a Cabinet Office Behavioural Insights Team Roundtable (13 June 2012); noted as 'a new initiative... looking at the role of design and engineering in influencing human behaviour outcomes involving behavioural researchers, designers and engineers.';
- iv) her membership of the European Innovation Leadership Board where she has spoken about the contribution of design to innovation, with recommendations to the EU Commission to invest in design. This has been adopted by the Action Plan for Design- Driven Innovation and EU funding Call 'European Design Innovation Platform' April 2013.

5. Sources to corroborate the impact (indicative maximum of 10 references)

- **Urban Futures tool use**: *Assistant Head Regeneration and Planning,* Lancaster City Council.
- **Urban Futures methodology use and adoption:** Includes *Policy & Networks Manager*, Royal Town Planning Institute.
- **Specific policy influence**: Wellbeing and the environment impact through Foresight. "Foresight Project Mental Capital and Wellbeing. One-Year Review, October 2008 to November 2009": http://www.bis.gov.uk/assets/foresight/docs/mental-capital/mcw_oyr_180410_final.pdf
- **Wider policy impact:** Non- communicable Diseases debate via World Economic Forum Global Agenda Council*, a member World Economic Forum (WEF) Global Agenda Council* on Wellbeing and Mental Health.

Roundtable event 'New Perspectives from the Behavioural Sciences for Government

Policy Making' *Chief Scientific Advisor to HM Government and Head of the Government Office for Science.*

European Design Innovation Leadership Board, *Policy Officer at DG Enterprise and Industry*, European Commission.